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| 09/974,718 | 10/09/2001 | Lars-Gote Svenson | 0007533-0003 | 7846 |

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J. D. Harriman II
COUDERT BROTHERS LLP
23rd Floor
333 South Hope Street
Los Angeles, CA 90071

EXAMINER

PAYNE, DAVID C

| ART UNIT | PAPER NUMBER |
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2633

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/974,718

Applicant(s)

SVENSON ET AL.

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because drawings contain blank boxes and other shapes, which are not widely, recognized engineering symbols. Applicant must supply a suitable legend. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The following are direct quotations of 37 CFR 1.84(n), (o), repeated below:

- (n) *Symbols*. Graphical drawing symbols may be used for conventional elements when appropriate. The elements for which such symbols and labeled representations are used must be adequately identified in the specification. Known devices should be illustrated by symbols which have a universally recognized conventional meaning and are generally accepted in the art. **Other symbols which are not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable.**
- (o) *Legends*. **Suitable descriptive legends may be used subject to approval by the Office, or may be required by the examiner where necessary for understanding of the drawing.** They should contain as few words as possible.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

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of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-10, 12-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clow et al. US 6,005,890 A (Clow).

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Re claims 1, 2, 9, 13 and 21

Clow disclosed

A method for ringing and inter-symbol interference (*col./line: 1/25-30, 1/55-60*) reduction in a communications system comprising: providing an asymmetric pulse (*by virtue of different rise and fall times*) having an adjustable rise time and fall time (*col./line: 1/55-60*). Clow does not disclose that the communication system is an optical system. However, it would have been obvious to one of ordinary skill in the art at the time of invention to use the Clow system in an optical communication system. One is motivated as such since Clow disclosed that the system would provide increased degrees of reliability with a variety of transmission media, see *col./line: 1/44-46*), and optical media is a transmission media like other media subject to the same disturbances that Clow attempts to overcome. Clow does not explicitly state that the rise time is greater than the fall time. However it would have been obvious to one of ordinary skill in the art at the time of invention that the ability to independently adjust the rise times and fall times would allow one to create a scenario in which the rise time is greater than the fall time. One is motivated to conclude such since Clow states that the "rise time or fall time or both can be altered, perhaps increased..." see *col./line: 2/5-10*). Furthermore allowing the rise time to increase greater than the fall time minimizes the chance of the preceding pulse trailing edge from overlapping with the succeeding pulse leading edge, which in turn reduces the bit reception error rate.

As to claim 9, Clow further disclosed a signal obtainer (*processor (16a) ... adapted for receiving transmissions from the element (26), col./line: 3/66-67, 4/1-3*) to obtain an input signal; and a rise time increasing unit (*programmable processor 16a of*

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Figure 1). Note, the processor both obtains the signal and generates signals as it is spaced along link (12) of Figure 1.

Regarding claims 3, 4, 14, 15, 22 and 23

Clow does not specifically disclose that the rise time is at least 50% longer (or twice the length *w.r.t.*, to claims 4, 15 and 33) than said fall time. Clow however disclosed that the decreasing the slew rate (conversely, increasing the rise and fall times) has the effect of reducing receiver or end of line waveform distortion significantly, (*see e.g., col./line: 4/60-65*). However, it would have been obvious to one of ordinary skill in the art at the time of invention to choose a ratio of rise time to fall time that would reduce the likelihood of ringing and cross talk that Clow disclosed as previously discussed with regard to claim 1. Longer rise and fall times reduce ringing at pulse signal level transitions, which is shown in the contrast between Figures 4 and 6. However, lengthening the rise and fall times creates a greater opportunity for pulse overlap between the falling edge of a pulse and the rising edge of the subsequent pulse, which has the effect of narrowing an eye diagram which is descriptive of signal quality. The obvious compromise is therefore to maintain longer pulse transition times but also create less opportunity for pulse overlap between the rising edges and falling edges of adjacent pulses. This reduction in overlap can be accomplished by making the leading edge of a pulse (rise time) last longer (50% or twice as much) than the falling edge of the pulse, which creates a condition where the falling edge does not create a false reception of a transition from low to high signal at the receiver

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for the subsequent rising edge of the next pulse. Furthermore, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Regarding claims 5, 16 and 24

Clow does not specifically disclose that the rise time is at least 30% of the pulse width (*w.r.t.*, claim 24 bit period). Note pulse width is defined as the interval between (a) the time during the first transition that the pulse amplitude reaches a specified fraction (level) of its final amplitude and (b) the time the pulse amplitude drops, on the last transition to the same level. This level is typically defined as either 50% or 90% of the final amplitude. Therefore pulse width/ bit period is a function of the rise and fall times of a pulse. Likewise with regard to the preceding discussion it would have been obvious to one ordinary skill in the art the time of invention to choose a rise time that consumes much of the bit period to prevent pulse overlap. As for choosing the rise time as 30% of the pulse width or bit period, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Regarding claims 8, 12 and 20

The Clow system as discussed above, where it has been shown to be obvious to employ in an optical system, by virtue of being an optical system is well known as

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capable of high-speed transmission.

Re claim 17

Clow disclosed the aforementioned system, including a

A computer program product (*programmable processor, 16a of Figure 1*)

and computer usable medium (*read/write memory or magnetic mass memory*

col./line: 3/60-65). But Clow does not specifically disclose computer readable

programmable code. It would have been obvious to one of ordinary skill in the art at

the time of invention to include computer readable code as part of the programmable

processor disclosed by Clow. One is motivated as such since all a programmable

processors perform operations based on program code which allows variable

operation as is well known in the art.

Re claims 6, 10 and 18,

Clow disclosed the practice of increasing the pulse width (note, which automatically

delays the falling edge) to reduce the error rate of the signal (*col./line: 6/2-6*).

4. Claims 7, 11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clow et al. US 6,005,890 A (Clow) in view of Roberts 6,252,692 B1 (Roberts).

Re claims 7, 11, 19

Clow disclosed the aforementioned system but does not disclose a system comprising

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a directly modulated laser diode. Roberts disclosed the use of direct modulated laser diodes (Figure 4). It would have been obvious to one of ordinary skill in the art at the time of invention to use direct modulated laser diode in the transmission system of Clow. One is motivated as such since the advantages of using direct modulation for the pattern include the reduced cost of the parts required, particularly where low frequencies are involved, and the amount of wavelength variation that can be achieved, as discussed by Roberts, see *col./line: 7/58-61*.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

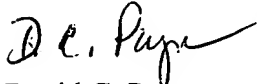
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Dcp



David C. Payne
Patent Examiner
AU 2633